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民族生态学在云南山区资源管理和可持续发展中的应用[*]

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摘要：中国在从计划经济向市场经济的过渡中引发了云南山区的许多经济、社会和文化的冲突和变化，其中许多关于利用自然资源的冲突常常源于相抵触的当地传统知识和外来知识体系中不同的目标和对不同事物的认同。同时，我们对山地生态系统及其当地民族和自然系统的互动关系的认识还远远不完善。民族生态学，作为研究不同民族和社区如何与其自然环境中各个方面（包括植物、动物、土地、森林和土壤等）相互作用关系的一门科学，为我们提高对山地生态系统的认识和可持续发展提供了一个途径。云南山区的可持续生计和发展只能通过加强传统知识和对当地社区的赋权才能实现。

关键词：民族生态学；传统知识；资源管理；可持续生计；山区
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Applying Ethnoecology for Resource Management and Sustainable Development in Mountain Region of Yunnan

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Abstract: China's recent transition from central planning to a market economy has triggered many economic and socio-cultural changes among Yunnan's ethnic groups. There are a lot of conflicts over natural resources, which often result from competing knowledge system, competing objectives and competing identification. However our knowledge about indigenous people and ecosystems in mountain region is still far from perfect. The ethnoecology refers the way in which indigenous people interact with all elements of the natural environment, including plants and animals, landforms, forest types and soils, which provides an alternative approach of way of knowing and sustainable development in the mountain region. The sustainable livelihood and development can be only achieved by strengthening indigenous knowledge and empowering local communities in the mountain regions such as Yunnan Province, Southwest China.

Key words: Ethnoecology; Indigenous Knowledge; Resource Management; Sustainable Livelihood; Mountain Region

Introduction

The mountain region is often identified as remote and mysterious; a place for prisoners, the ex-

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iled or those otherwise unwanted by soicety. This erroneous idea is supported by literature such as the famous Chinese novel *The Three Kingdoms* (220 – 265 A. D.), which describes Yunnan and Southwest China as a jungle wilderness permeated by pythons, malaria and primitive peoples. Many former dynasties, criminals and ousted officials were punished by being deported to mountain frontiers such as Yunnan. As a result, many Chinese in the remote mountain areas of Yunnan have said that they are originally from Nanjing in the Jiangsu Province. Although it has been half a century since humans successfully climbed to Everest's peak, our knowledge about mountains is still far from perfect. Moreover, our understanding about the relationship between people and nature in mountain regions remains rife with misconceptions and false assumptions. How do we celebrate the International Year of Mountain (2002): through the fascination the mountain region holds? through its exoticism? its complexity? or its mystery?

Yunnan, meaning "south of the clouds", is located in Southwest China. It is bordered by the Tibet Autonomous Region and Sichuan province on the west, Guizhou province on the north, and the Guangxi provinces on the east. To the south and southwest are found the countries of Vietnam, Laos, and Myanmar. Due to its location on the headwaters of all the major rivers within this montane region, Yunnan serves as the geophysical roof of Mainland Southeast Asia. The ecological health of this "roof" of southwest China and Southeast Asia is a prime concern of many stakeholders in all the surrounding countries and provinces. A planned increase in regional development will bring new and vast constructions of communication and transportation system infrastructures along the Mekong and other river systems. Yunnan has a total area of 394, 000 square kilometers. It has a population of 42.9 million people which is spread over 128 counties in 16 districts or prefectures. The population includes 14.6 million ethnic minority peoples with diverse indigenous cultures and livelihoods. The ethnic minorities of the Yunnan uplands include Tibeto-Burman peoples, such as Tibetan, Naxi, Yi, Hani (Akha), Jingpo, Lisu, Lahu, Nu, Derung, Primi, and Jinuo; Mon-khmer, such as Wa, Bulang, and Deang; and Miao-Yao including the Miao and Yao. Due to the region's biological complexity, the ethnic minorities in Yunnan are characterized by complex dialects within groups and distinctive socio-economic systems.

Despite the dynamic cultural practices of indigenous people, their knowledge systems (indigenous knowledge) which include cultural beliefs and values, linguistic knowledge, technical practices, knowledge transfer, customary institutions for social consent and governance are rapidly fading away (Cox, 1999, Sutherland, 2003). In addition to the physical threats to biodiversity, in some places, the human languages and knowledge linked to the maintenance and sustainable use of biodiversity have already become extinct.

What is Ethnoecology?

There are a lot of conflicts over natural resources, which often result from competing knowledge system, competing objectives and competing identification. These conflicts often involve indigenous people and nation-states. We observed that, from an evolutionary perspective, our modern society is still immature and imperfect. Hopefully. it will improve through learning from the organization of ecosystems and from some of indigenous cultures that have survived impetus to modernization. The interest in the study of indigenous knowledge of nature and ecosystems has considerably increased over the last two decades (Agrawal, 1995, Toledo, 1992, Vayda & Rappaport, 1968). Harold Conklin first defined the term ethno-ecology in his study of the Hanunoo in the Philippines (Conklin, 1954). Ecology can be defined as an interdisciplinary approach to the study of the interaction between humans and nature. This interaction, including biota and non-biota in the ecosystem, is reflected in the people's beliefs, knowledge and practices for conserving, maintaining and managing nature resources. Therefore, the focus of ethnoecology studies is the way in which people interact with all aspects of the natural environment, including plants and animals, landforms, forest types and soils.

Indigenous people draw on their own sources of knowledge about biodiversity and environment. This shows their diversity and adaptation in mediating their relationship with the local environment and ecosystems. In Yunnan, this type of indigenous knowledge is a pluralistic approach to the conservation and management of resources in the mountain region. It is a social construction process based on subjective understanding and incorporates a distinct cosmology (world views) and institutions that guide human action. Indigenous knowledge of biodiversity and environment in mountain ecosystems is composite and diverse yet it is also holistic due to differences in altitude and latitude, as well as the ethnic diversity in the mountain ecosystems. It comes from different sources-across generations, through indigenous experts, through empirical trials and even by means of scientific information. Both indigenous and conventional scientific knowledge are always imperfect and incomplete. Conservation and resource management thus requires mutual respect and involves a learning process. Indigenous knowledge systems bring a cognitive diversity to the scientific learning process. Just as biodiversity is essential to nature and invaluable for human beings, so too is cognitive diversity (Harding 1998). Indigenous knowledge and indigenous peope can teach us how to shift from a reductionist to a systemic view of the world, which includes ourselves, as living beings, in the ecosystem and how to shift from expert-based environmental management to a participatory-based ecosystem stewardship.

The Indigenous Knowledge: a Ethnoecological Perspective

The great majority of the world's population, including most of both lowland and upland peoples in Southeast Asia and Southwest China, depends on mountain ecosystems for environmental goods and services. The Yunnan mountain region provides vital watershed services for lowland peoples in the rice bowls of the low Mekong areas of Vietnam, Cambodia, and Laos. These watershed services are needed for rice cultivation, fishing, irrigation and transportation. The connection between humans and the earth demonstrates the links between cultural and biological diversity, and the ecosystem goods and services in the upland and lowland interactions. Mountains are still primarily seen as exploitable sources of environmental goods and services that benefit the global community rather than as sources of livelihood for local mountain peoples. Mountain ecosystems are increasingly being used as a venue for recreational tourism. However, there is little evidence that the growth of tourism has offered new opportunities for upland communities to take control of their future, to revitalize their cultural heritage, and to emerge from a subordinate position vis-à-vis the lowlands (Menzies, 2003). Mountain farmers are still perceived as the destructors of mountain environments. This perception serves as the justification for decision-makers of resource sanctions and sedentarization of shifting cultivation. Indigenous knowledge and cultural assets are often perceived as obstacles to development, and therefore the uplands tend to be the object of studies of problems such as poverty, environmental degradation, and low productivity.

Political discourse on the management of upland ecosystems has often been dominated by either the government or lowland peoples while mountain peoples are excluded. The government and lowland peoples view the mountains from through the lenses of their lowland lifestyle and values without understanding what they are looking at. As a result, they frequently perceive the management practices of mountain peoples as primitive and therefore harmful to mountain environments. Disconnection between indigenous people and their environments as well as simplification of place, people and practices in the specific circumstances of a certain mountain ecosystems have furthered the local people's dilemma.

Globalization is not new to the mountain region. Social connection through migration, trade and other social networks is a common phenomenon for mountain people. Since the Han dynasty, (B. C. 206-A. D. 220), Yunnan has been a major trade route between Sichuan Province in Central China, Myanmar, Thailand, India and eventually the Middle East on the 'Southern Silk Road'. The 'Southern Silk Road' was discovered by the famous explorer, Zhang Qian on his adventure to the Middle East. It was followed by the "Northern Silk Road" in 122 B. C. Historically, the trade has not only significantly contributed to the economic prosperity but also more importantly to cultural exchange and civilization in the world. The Chinese eunuch Cheng Ho's seven voyages in the Southeast Asia Pacific and Indian Oceans during the Ming Dynasty (1405 – 1433) were for diplomatic rather than merchant purposes. His flotillas of several hundred junks could safely venture the nearly 10, 000 miles to Zanzibar off the southeast coast of Africa.

As we enter the new millennium and the information age, the financial and commercial globalization and digital divide are polarizing the world between the commercialized peoples in the North and the local peoples in the South. In the regions of developing countries, we are witnessing a further polarization between indigenous people (those who live in the mountain periphery or rural areas) with traditional knowledge, and an urban middle class with high technological knowledge (Kates et al, 2001). The commercialization and market economy has divided old and young generations of indigenous communities. This division is due to off-farm and migration opportunities in the cities. The rapid and often coerced divorcing of indigenous people from dependence upon and rights to their immediate environment for their livelihoods has been set in motion. One of the first aspects of indigenous culture to fall before the onslaught of outside commercial and petroleum-propelled civilization is knowledge such as the use of biological resources for medicine, food and shelters, land-use practices and customary institutions for governing access to natural resources.

By observing the landscape of the mountain ecosystems, we often find that land-use practices are a product of a long history of creative adaptation to local environments and ecological conditions including items such as climate，terrain，soil，water，air，plants，and animals. These adaptive practices have given rise to the knowledge that enables these people to live well in diverse and sometimes harsh environments，as well as to develop livelihoods，such as fishing，hunting and gathering，shifting cultivation，nomadic pastoralism and terraced agriculture. These practices also enable people to develop livelihoods through trade in natural and cultural products through social networks. Considering the poverty in which mountain farmers live in theory，it often comes as a surprise that they live in an affluent society and enjoy a kind of material plenty as described by Marshall Sahlins（1972）.

However，our decision-makers and“educated”land use-planners tend to impose their own regimen，which they call“improvement，”onto environments and societies of which they have no understanding. For example，the mono-culture plantation and large-scale logging operations in the mountain region often cause landslides，soil and water erosion，biodiversity loss and displacement of mountain communities，and most importantly，the scarcity of anything which the indigenous people used to have. This phenomenon has been defined as‘state simplifications’（Scott，1998）. The key point is that states，in dealing with diverse natural and social environments，attempt to make these environments comprehensible by creating‘thin simplifications’. These are generalizations that ignore specific local circumstances，local knowledge and indigenous practices and therefore frequently lead to problems such as a lack of acceptance of new land-use policies and detrimental environmental and social impacts of implemented land-use policies on local livelihoods and cultural identity. The interests of the state and farmers regarding land are often at loggerheads. The knowledge of the resource managers regarding the relationship between human and nature also differs from that of indigenous people. The mismatch of the government's land-use policies and the farmers' practices and the clash of different knowledge systems are often the source of conflict in rural communities in the mountain region（Ganjanapan，2003）.

Contribution of Indigenous Knowledge to Sustainable Livelihoods

The diversity of knowledge systems guides the process of the transformation of natural landscapes into cultural landscapes（e.g.，sacred mountains and lakes），ecological functions and livelihood support systems in the particularly situated socioeconomic and biophysical environments. Nevertheless，it is still the case that the analysis of sustainable livelihoods does not pay enough attention to the local placed indigenous knowledge of access to biological diversity and applying the knowledge to land use practices（Scoones 1998）.

In eco-based societies，knowledgeable persons or indigenous experts such as the Hani（*Akha*）traditional village chief（*zoema*）are well respected by the society and actively participate in the local informal education and decision-making as well as a full round of productive activities. Moreover，increasing acquisition of goods through access to and use of biological resources，especially non-timber forest products（NTFPs）and local agricultural products，has created a system of *knowledge power*. This power has the capability of accessing resources and socially influencing others within local society.

In this local society, the people's livelihoods and the environment they depend upon is sustained through the complex interaction of a number of variables whose full significance and nature of interaction cannot be fully predicted due to the complexity of the relationships involved.

Sustainable livelihoods are a function of the interaction between biodiversity (natural capital), indigenous knowledge (social capital) and enabling environment (both policies and marketing forces). Indigenous knowledge includes cultural beliefs and social values, cognitive learning processes, knowledge transfer, technical knowledge for practices and innovations, customary institutions for social consent and local governance. That is, it is a complex relationship that is beyond outside experts to "manage," particularly over a long term, because we cannot predict how different variables will work out. Thus the "conservatism" which is usually negatively attributed to these societies, even while we move them out of our nature preserves in the interest of conservation, may be essential. The key to sustainable livelihood is the capability of indigenous people to access natural capital such as NTFPs, to adapt to changed environment and ecosystems, to access market niches in the marketing chain, and to trade off between short-term and long-term goods and services. The role of outsiders is to facilitate local people in the reconstruction of the emerging knowledge system and adaptation strategy in their interactions at large-scale (often global scale) and accelerated times in the changed human-environment system, as demonstrated in Matsutake mushroom study (He Jun, in the volume).

Resources are defined as belonging to two broad categories: **natural resources and cultural resources**. The term natural resources refers to forest, rangeland, rivers, lakes and other kinds of natural endowments that human societies' livelihoods cannot be sustained without; the term cultural resources refers to traditional livelihood practices, place-and-time specific knowledge about their home land, cultural beliefs and values, such as the sacred lakes and mountains in Buddhist belief, perceptions of factors responsible for good harvest and good rain fall or natural disaster. More often than not, the cultural resources viewed in public eyes are merely those which are commercially marketable, that have easy market values for tourism development, such as singing, dancing, costumes and exotic customs. Those resources have been governed by a bundle of **property right regimes**: Some resources are owned by individuals as private property; some are held by a particular group of people (e.g., Tibetan Lama), some are held by communities as common or collective property, some are owned by the state as public property, and some are open-access resources. The total of resources together with a range of property right regimes are transformed into **natural assets**, and further regulated by **social capitals** in the form of customary or voluntary organizations or institutions that bind people with shared identity, trust cooperation and rules of when, where, how much to harvest or other dos and don'ts, and varied forms of village sanctions on those who fail to follow.

Resource access, such as access to land, access to water and forest, even access to marketing and social networking, is essential for sustainable livelihood and poverty reduction. Resource access is composed of direct physical access, market access, labor access, access to capital, access to social relations and access to knowledge (Ribot and Peluso, 2003). These, in turn, are shaped by and help shape legal and extra-legal mechanisms and processes that are part and parcel of access and access control.

The lessons learned from development in the mountain region are that the regions with unfavorable policy environment (such as resource sanction, block access to biodiversity, suppressed or displaced cultural communities) usually often experience the poverty and sometimes a degraded environment. On the other hand, the loss of biodiversity can lead to the loss of cultural diversity, and therefore, further deteriorated local livelihoods.

Indigenous Knowledge as Social Capital for Good Governance

Knowledge has the power to orient human action, and therefore to mediate social relations within a community. Knowledge can also frame social networks between lowland and upland, as well as the political relations between the periphery and center, and even between the West and the East, and between the North and the South. Knowledge can be represented as a political voice in the local and high-level decision-making. Knowledge is the key to governance, which involves actor, accountability and rights.

What we have learned about good governance from indigenous communities is that we need knowledgeable people combined with community consultation in order for consensus and decision-making. The good governance in the mountain region needs an innovative way of thinking, an accountable knowledge system and a governance structure, all of which should operate within different domains, the state, the academy, the private sector and civil society. These domains are not mutually exclusive. In fact, the greatest challenge for governance is to find a balance between knowledge systems, power structures, and participatory processes.

Indigenous knowledge, particularly customary institutions, play important roles in regulating access to land and natural resources through the social and cultural sanctions. For example, the Hani are basically animistic in their beliefs and place a strong emphasis on the worshipping of ancestors as evidenced in their strictly protected cemetery forests. Familiar objects such as trees and animals are often vested with supernatural powers. The Hani believe that disturbances or violence inflicted on the supernatural, including ancestral spirits, will cause illnesses. The village chief (*zoema*), or his shaman (*biemo* and *nipa*), performs the rituals required for the traditional festivals and other activities (Xu et al, 2001). Indigenous people form a" non-dominant "sector of society, and they are particularly vulnerable to poor governance. Centralized planning at high levels, poor governance and bad development practices at local level have often destroyed the natural and cultural resources on which indigenous peoples have traditionally depended for their livelihoods. The poor governance and poverty of indigenous communities are often due to lack of citizenship (in case of Thai tribal people), lack of secure tenure for land, lack of property rights to traditional knowledge, forced resettlement, outside extraction of timber, minerals, large-scale commercial plantation, unfair trade arrangement, etc. An integrated approach, including the revitalization of indigenous practices, the empowerment of local communities, and decentralization of resource governance, which secures access and rights could point to a pathway to good governance in montane indigenous communities. There is an emerging trend toward community-based natural resource management (CBNRM) or cultural-based natural resource management, which allows local people take their responsibility, their knowledge, and process for conversation and the sustainable use of natural resources, and finally, building the competence of "civil scientists" at the village level with an accountable knowledge system of indigenous and scientific society (Getz, et al. 1999).

The UN's Draft Declaration on the Rights of Indigenous Peoples provides strong recognition of Indigenous Peoples' rights and could be a useful reference when considering how questions of governance relate to Indigenous Peoples. Article 26 states:

Indigenous Peoples have the right to own, develop, control and use the lands and territories, including the total environment of their land, air waters, coastal seas, sea-ice, flora and fauna and other resources which they have traditionally owned or otherwise occupied or used. This includes the right to the full recognition of the laws, traditions and customs, land tenure systems and institutions for the development and management of resources, and the right to effective measures by States to prevent any interference with, alienation or encroachment on these rights.

The 1992 Convention on Biological Diversity is also key international protocol for not only the protection and sharing of biological resources, but also addressing issues of indigenous knowledge. It calls for respect, to promote wide applications of indigenous knowledge, as well as to encourage the equitable sharing of benefits from indigenous knowledge. In both developed and developing countries, there are emerging indigenous movements for the advocacy of indigenous knowledge and traditional resource rights (Pocey and Dutfield, 1996). Local communities have been neglected and their traditional resource rights marginalized and trampled upon. A new democracy is required and it is to be worked out with local communities for their self-reliance and right to self-development. Community rights are being raised not just for the sake of a defense mechanism against encroachment from outside, but as the foundation of a new global democratic order and resource governance. Thus, the principle of social protection and a human-enabling/nature-conserving economy can realistically be established. The traditional resource rights are an inextricable part of human creativity, which is vital to the ability to adapt to the changing human-environment system and globalizing world. Hopefully, indigenous knowledge and wisdom will be able to live up to its potential creativity in the common task of social reconstruction, globally and locally.

Enabling Environment for Applying Ethnoecology

Currently, natural resource management in the mountain regions of Yunnan is dominated by 'lowland' patterns of thinking. These patterns serve to channel the benefits derived from mountain resources to lowland economic and political centers. The negative impacts of the marginalization of upland people has challenged government agencies to devise policies and institutions that.

1) are more supportive of indigenous knowledge and innovations, cultural identity and local livelihoods;

2) secure access to natural and cultural resources for build-up both accountable knowledge system

and good governance structure at local level；

3) work in partnerships with different stakeholders including public and civil society，government and private sectors for co-management of resources in the mountain region；

4) facilitate transferable rights and benefit shared rights of knowledge，resources，products，and eco-and-ethic as well as patent-related trade in the mountain region.

First，the impacts of indigenous practices and traditional land use on biodiversity need to be assessed from a mountain perspective taking into account the dynamic and holistic relationship between indigenous communities and ecosystems. State simplifications such as the view that shifting agriculture is unsustainable and destructive，need to be replaced by careful assessments that take into account the diversity of local environmental conditions，traditional land ownership and land use practices，including indigenous understandings of these factors as well as contribution to plant domestication and agricultural biodiversity in the traditional agroecosystems. Both scientists and indigenous experts or“civil scientists”must work together for further generations of accountable knowledge system for local communities and mainstream society.

Secondly，secure access to land and natural resources，on which local people's knowledge and customs are based，needs to be ensured；participation in the political discussion and decision-making is equally important for access to knowledge and technology transfer for mountain indigenous people，as well as. Traditional resource rights include not only collective intellectual property rights，but also resource ownership，fair arrangements for allocating management，harvesting，marketing and trade.

Thirdly，the decentralization of local policy formulation，planning and action processes，which eventually increase local autonomy，will require capacity building and empowerment of local communities through village democratic processes such as election of village committee and transparent management of community affairs. Capacity building among community members，NGOs and government staff should ensure that adequate skills are acquired at the appropriate level. New technologies and resource management processes require effective training，impact assessment，transparent decision-making and follow-up support. Government agencies may have to first develop these skills in order to provide appropriate support for local communities. Such support should aim not to simply transfer modern technologies，but to support local processes of innovation in which indigenous knowledge can play a role alongside external scientific knowledge in devising solutions to contemporary problems and opportunities in the mountain region.

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